

## CLAIMS

What is claimed is.

- 1    1.     A process comprising:  
2         pressing an electrical bump against a film, wherein the electrical bump is  
3         disposed on a substrate; and  
4         forming a stress-compensation layer against the electrical bump, the  
5         substrate, and the film.
- 1    2.     The process of claim 1, further including removing the film.
- 1    3.     The process of claim 1, wherein removing the film at least partially exposes  
2         the electrical bump.
- 1    4.     The process of claim 1, wherein pressing an electrical bump against a film  
2         includes embedding the electrical bump in the film in a range from about 5%  
3         embedded to about 95% embedded.
- 1    5.     The process of claim 1, wherein forming a stress-compensation layer  
2         includes a process selected from capillary underfill, vacuum-assisted capillary  
3         underfill, positive-pressure assisted capillary underfill, and injection molding  
4         underfill.
- 1    6.     The process of claim 1, wherein forming a stress-compensation layer  
2         includes a process of forming a particulate-containing stress-compensation layer.
- 1    7.     The process of claim 1, further including curing the stress-compensation  
2         layer, selected from ultraviolet curing, microwave curing, thermal curing, chemical  
3         curing, timed curing, and combinations thereof.

1 8. The process of claim 1, further including:  
2 curing the stress-compensation layer; and  
3 coupling the electrical bump with an electrical contact.

1 9. The process of claim 1, further including:  
2 curing the stress-compensation layer; and  
3 coupling the electrical bump with an electrical contact, wherein curing the  
4 stress-compensation layer follows coupling the electrical bump.

1 10. A process comprising:  
2 pressing an electrical bump in a ball grid array disposed on a substrate  
3 against a compressible film under conditions to at least partially embed the electrical  
4 bump into the compressible film;  
5 forming a stress-compensation layer between the substrate and the  
6 compressible film; and  
7 removing the compressible film.

1 11. The process of claim 10, further including curing the stress-compensation  
2 layer.

1 12. The process of claim 10, further including curing the stress-compensation  
2 layer, selected from ultraviolet curing, microwave curing, thermal curing, chemical  
3 curing, timed curing, and combinations thereof.

1 13. The process of claim 10, wherein pressing an electrical bump includes  
2 embedding the electrical bump in the compressible film in a range from about 10%  
3 embedded to about 90% embedded.

1 14. The process of claim 10, wherein forming a stress-compensation layer  
2 includes a process selected from capillary underfill, vacuum-assisted capillary

3 underfill, positive-pressure assisted capillary underfill, and injection molding  
4 compound underfill.

1 15. The process of claim 10, wherein forming a stress-compensation layer  
2 includes a process selected from capillary underfill, vacuum-assisted capillary  
3 underfill, positive-pressure assisted capillary underfill, and injection molding  
4 compound underfill, the process further including:  
5 curing the stress-compensation layer, selected from ultraviolet curing,  
6 microwave curing, thermal curing, chemical curing, timed curing, and combinations  
7 thereof.

1 16. The process of claim 10, wherein forming a stress-compensation layer  
2 includes a process of forming a particulate-containing stress-compensation layer.

1 17. An article comprising:  
2 a substrate including an upper surface;  
3 an electrical bump disposed on the upper surface; and  
4 a stress-compensation layer disposed on the upper surface, wherein the  
5 electrical bump is embedded in the stress-compensation layer, wherein the stress-  
6 compensation layer includes a surface profile characteristic of an imposed  
7 compressible film.

1 18. The article of claim 17, wherein the stress-compensation layer includes an  
2 underfill material selected from capillary underfill material, vacuum-assisted  
3 capillary underfill material, positive-pressure assisted capillary underfill material,  
4 and injection molding compound underfill material.

1 19. The article of claim 17, wherein the stress-compensation layer includes an  
2 underfill material, and wherein the underfill material includes a filler particulate.

1 20. The article of claim 17, wherein the substrate is selected from a  
2 semiconductive device and a mounting substrate.

1 21. A computing system comprising:  
2 a substrate including an upper surface;  
3 an electrical bump disposed on the upper surface;  
4 a stress-compensation layer disposed on the upper surface, wherein the  
5 electrical bump is embedded in the stress-compensation layer, wherein the stress-  
6 compensation layer includes a surface profile characteristic of an imposed  
7 compressible film; and  
8 at least one of an input device and an output device.

1 22. The computing system of claim 21, wherein the substrate includes a  
2 microelectronic die.

1 23. The computing system of claim 21, wherein the substrate includes a  
2 mounting substrate and further including a microelectronic die disposed on the  
3 mounting substrate on a die side thereof, and wherein the electrical bump is  
4 disposed opposite on a board side thereof.

1 24. The computing system of claim 21, wherein the computing system is  
2 disposed in one of a computer, a wireless communicator, a hand-held device, an  
3 automobile, a locomotive, an aircraft, a watercraft, and a spacecraft.

1 25. The computing system of claim 21, further including a microelectronic die,  
2 wherein the microelectronic die is selected from a data storage device, a digital  
3 signal processor, a micro controller, an application specific integrated circuit, and a  
4 microprocessor.

- 1 26. A computing system comprising:  
2 a substrate including an upper surface;  
3 an electrical bump disposed on the upper surface;  
4 a stress-compensation layer disposed on the upper surface, wherein the  
5 electrical bump is embedded in the stress-compensation layer, wherein the stress-  
6 compensation layer includes a surface profile characteristic of an imposed  
7 compressible film;  
8 at least one of an input device and an output device; and  
9 a housing, wherein the housing encloses the stress-compensation layer.
- 1 27. The computing system of claim 26, wherein the substrate includes a  
2 microelectronic die.
- 1 28. The computing system of claim 26, wherein the substrate includes a  
2 mounting substrate and further including a microelectronic die disposed on the  
3 mounting substrate on a die side thereof, and wherein the electrical bump is  
4 disposed opposite on a board side thereof.
- 1 29. The computing system of claim 26, wherein the computing system is  
2 disposed in one of a computer, a wireless communicator, a hand-held device, an  
3 automobile, a locomotive, an aircraft, a watercraft, and a spacecraft.
- 1 30. The computing system of claim 26, further including a microelectronic die,  
2 wherein the microelectronic die is selected from a data storage device, a digital  
3 signal processor, a micro controller, an application specific integrated circuit, and a  
4 microprocessor.